

REMARKS

By this Amendment, claim 1 is revised and claims 2 and 3 are canceled to place this application in immediate condition for allowance. Currently, claims 1, 4, 5 and 7-11 are before the Examiner for consideration on their merits.

In review, claim 1 is revised to include the features of claims 2 and 3 therein as well as an additional drying step. No new matter is introduced by the change to claim 1 since pages 6 and 7 and pages 9 and 10 provide support for the temperature and pressure limitations and page 7, lines 15 and 16, provides support for the drying step.

Turning now to the prior art rejection, the question of obvious turns on whether the combination of the admitted prior art, Charles, and Takahashi establish a *prima facie* case of obviousness against claim 1 in its amended form. Applicant submits that the applied prior art does not establish a *prima facie* case of obviousness and the rejection must be withdrawn.

In review, claim 1 now defines the steps of cleaning the ground surface with certain temperature and pressure steam in a particular manner followed by a drying step and softening heating step.

Applicant submits that the combination of Charles, Takahashi, and the admitted prior art does not establish a *prima facie* case of obviousness against claim 1 as amended.

In review, the Examiner takes the position that one novel aspect of claim 1 is the step of applying the pressurized steam to surfaces of the glass body and that the remaining steps are taught by the admitted prior art. The Examiner concludes that

Charles teaches that one can substitute the prior art method of acid solution treatment with an aqueous steam treatment and this step of claim 1 is obvious based on Charles.

The Examiner uses Takahashi to allege that the jetting of the steam against the glass body is known and therefore obvious.

Key to the Examiner's rejection is the reliance on Charles as a teaching of the application of steam. The argument below will demonstrate that Charles does not teach the step missing in the prior art, i.e. the combination of grinding, steam application, and drying as is now recited in the claims.

Charles teaches placement of glass bodies in a steam atmosphere for a period of about 10-20 minutes to form a corrosion product layer of 2 to 5 mils thickness on the surface of the glass bodies. The steam atmosphere contains 80 to 100% saturated steam and is maintained in the range of 190 to 260 °C. Treatment time is from about 10 to 20 minutes. The starting glass bodies of Charles are not stated as being ground. If the ground surface of the glass bodies was placed in such a steam atmosphere, the resulting corrosion product layer would not become uniform because of the presence of dirt or dust developed as part of the grinding process.

No concept of cleaning the glass body surface is found in Charles, only the formation of a corrosion product layer on the glass body surface is taught. In contrast, the method of the invention involves the steps of cleaning and drying of the glass body. The claimed drying step is important because complete removal of moisture existing in or on the surface of the glass body is necessary for subsequent softening and elongation processing. If moisture is left absorbed on a smaller-sized rod, it

adversely influences a final optical fiber and provides opaque defects in the optical fiber as explained on page 7, lines 6-9 of the present application. Because of the possibility of defects caused by moisture, the glass matrix is dried to a full extent by exposure to a flow of clean air as described on page 7, lines 18-22 of the specification.

In short, Charles completely fails to teach a series of grinding, cleaning, and drying steps so as to remove dirt or dust from a ground surface of a glass body. Charles only teaches the use of an atmosphere of steam having a temperature range of 190-260 °C, which is appreciably higher than the claimed range of 120-160 °C, for the purpose of forming the corrosion product layer.

The high temperatures of Charles are necessary to increase material strength by formation of a specific type of layer on the material surface. Higher temperatures are unfavorable in the instant invention because unnecessary costs are incurred during the drying cycle, i.e., the cooling requirement down to 50 °C, see page 12, line 15 of the specification, is unnecessarily increased by using needlessly high temperatures.

Turning back to the rejection, the Examiner is taking the position that it would be obvious to use the steam application treatment of Charles in place of the acid solution treatment described in the admitted prior art. Even, *assuming arguendo*, that it was obvious to use the steam treatment of Charles, Charles says nothing about the requirement of conducting a drying step following the steam treatment. Since claim 1 now requires a drying step following the cleaning step, and this drying step is not found in Charles, a *prima facie* case of obviousness is not established even if the admitted prior art is modified according to the teachings of Charles. The Examiner

must also address the question of whether there is a drying step in the admitted prior art, and without this, the rejection is improper.

Applicant also contends that the temperature requirement of claim 1 is not suggested by Charles and if anything, Charles teaches away from specifying such a temperature. In the rejection, the Examiner equates the lower limit of 190 °C with the upper limit of 160 °C of the claims in order to shift the burden to Applicant to demonstrate some criticality to the claimed temperature. This approach is in error since 160 °C cannot be considered to be “about 190 °C” as alleged in the Action. The meaning of “about” must be considered in the context of the teachings of Charles. See *Ortho-McNeil Pharm., Inc. v. Caraco Pharm. Labs., Ltd.*, 476 F.3d 1321, 1326, (Fed. Cir. 2007) (“The use of the word “about,” avoids a strict numerical boundary to the specified parameter. Its range must be interpreted in its technological and stylistic context. We thus consider how the term . . . was used in the patent specification, the prosecution history, and other claims. It is appropriate to consider the effects of varying that parameter, for the inventor's intended meaning is relevant. Extrinsic evidence of meaning and usage in the art may be helpful in determining the criticality of the parameter”).

Considering the specification of Charles reveals the important of the range of 190 to 260 °C for producing the corrosion product layer which enhances the strength of the glass body. This 190 to 260 °C temperature range is specifically based on the 80 to 100 percent saturation, see col. 2, lines 10-22. Moreover, the example used in Charles is in the middle of this range. From this, it is only reasonable to conclude that the “about” in Charles deserves a narrow interpretation, not the expansive one

taken by the Examiner. Since the context of Charles gives a narrow interpretation to the lower limit of "about 190 °C", it is not proper to consider "about 190 °C" to equate to 160 °C. This means that the Examiner does not have a reason to support the allegation that the claimed temperature range is obvious based on the teachings of Charles and the rejection fails for this reason.

The purpose of increasing strength in the context of Charles is another reason that substantiates Applicant's contention that the temperature range of claim 1 is not suggested in Charles. The desired increase in strength of the body, which requires the high temperature used in Charles, has nothing to do with the prior art method of grinding a glass body and the need for removing the dirt using chemicals as done in the admitted prior art. This is further substantiation that there is no reason to conclude that the claimed temperature is obvious based on Charles.

Takahashi teaches the removal of dust adhered on the surface of optical fiber base material. This dust is a fire retardant dust containing chromium or zirconium that is generated from a carbon member in the drawing furnace as set out in paragraph [0003] of Takahashi. The dust is adhered on the base material by the action of static electricity generated on the base material surface. To overcome the adhesion, an optical fiber base material containing at least 100 to 1000 ppm of water molecules has been thermally treated in an atmosphere in the temperature range of 300 to 800 °C for at least ten hours. The removal of the ground dust by application of water jet according to the present invention is entirely different from the removal of the fire retardant dust of Takahashi using 100 to 10000 ppm of

water under given heating conditions for about ten hours. If a ground surface of a glass body is treated as containing 100 to 10000 ppm of water under heating conditions of 300 to 800 °C and ten hours, Applicant is unsure as to what would happen, but are fairly certain that no cleaning effect would occur.

The allegation that Takahashi teaches jetting steam is also a misinterpretation of the reference. In the rejection, the Examiner states that Takahashi teaches that steam is applied to the surface by “jetting through a fixed nozzle or gas introduction hole (15) which is provided around the glass body.” In fact, this glass introduction hole 15 is to introduce nitrogen along with the ppm level of moisture, and this cannot be considered to be jetting steam against the glass body as defined in claim 1. Since Takahashi fails to teach the claimed jetting step, the rejection is also improper for this reason.

DEPENDENT CLAIMS

Since claim 1 has been demonstrated to be patentably distinct from the applied prior art, its dependent claims are all patentable over this prior art.

SUMMARY

In summary, Applicant submits that a *prima facie* case of obviousness is not established against claim 1 in its amended form by the relied-upon prior art and that the rejection of claims 1, 4, 5, and 7-11 should be withdrawn.

Accordingly, the Examiner is requested to consider the arguments made above, and pass all pending claims onto issuance.

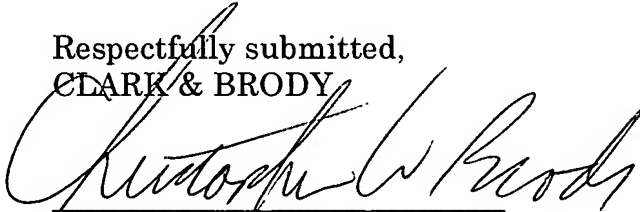
If the Examiner believes that an interview would be helpful in expediting the allowance of this application, the Examiner is requested to telephone the undersigned at 202-835-1753.

The above constitutes a complete response to all issues raised in the Office Action dated October 20, 2008.

Again, reconsideration and allowance of this application is respectfully requested.

A petition for a three month extension of time is made. A check in the amount of \$1,110.00 is attached, however, please charge any fee deficiencies or credit any overpayment to Deposit Account No. 50-1088.

Respectfully submitted,
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